

REMARKS/ARGUMENTS

This Amendment is responsive to the Office Action mailed April 13, 2004, in the above-referenced application. Claims 1 – 12, 14, 15, and 26 are pending and stand rejected. Claims 1 and 7 have been amended, and Claims 1 – 12, 14, 15, and 26 remain pending.

Claims 1-12, 14, and 15 are rejected under 35 USC § 112, second paragraph, as indefinite. Applicants offer the following comments.

Paragraph A) on page 2 of the final Office Action states that it is unclear what the process is, and that chemical reactions should be set forth in the process claims. The preamble of the claim has been better separated from the steps of the process claim by removing “comprising” language within the preamble. The rewording provides the reader with a clear understanding of process steps used in white liquor production before reciting the claimed process of controlling the production process in accordance with the invention. Additionally, the preamble of Claim 1 has been amended to specifically recite the chemical reactions of the white liquor production steps as requested by the Examiner. Also, Claim 1 has been amended to specifically recite the steps of determining a target value for the total titratable alkali, calculating a set value for green liquor density, and of controlling the density of the green liquor. These recitations further clarify the claims and are supported by page 8, line 33 through page 9, line 12, and Figure 1 of the disclosure.

In paragraph B), the Office argues that the term “a production curve” in Claim 10 is unclear. Applicant directs the Examiner’s attention to page 12, lines 18-23 and Figure 7 of the specification. The paragraph explains how the lime to green liquor ratio is changed with a change in production rate. The model for the ratio change in connection with the production change is illustrated by the curve in Figure 7. Adjusting the lime to green liquor ratio in accordance with a rate of production change is consistent with the goal of producing white liquor with uniform properties. Thus, the production curve recitation is not contrary to the tone and tenor of the specification.

In paragraph C) the Office argues that the term “dynamic” in Claim 7 is unclear. Claim 7 is amended to recite that the model is corrected dynamically. Support for the amendment is provided on page 11, line 19, through page 12, line 6.

In paragraph D) the Office argues that the term “model” is unclear with respect to how the model works and how values are calculated. Both independent Claims 1 and 26 recite measuring the total titratable alkali in the green liquor. As discussed above, the invention correlates the measured total titratable alkali of a green liquor stream to the density of the green liquor stream. With this value in hand, the operator can then readily adjust the green liquor density as necessary, for example, by introducing white liquor into the green liquor stream as recited in Claim 26.

One skilled in the art would understand the mathematics involved in this calculation based upon the chemistry of the causticizing process. The skilled artisan could therefore readily determine the relationship between TTA and density of the green liquor stream and implement any adjustments necessary to the green liquor stream to provide the desired downstream product. The nexus, i.e. the mathematic relationship, between the density and the TTA is also clearly defined within the application as filed, for example on page 9, line 31 through page 10, line 9. This correlation can be readily calculated manually or using a computer program. In either instance, the skilled artisan would understand the “model” or calculations that correlate these values. Applicant notes that the invention is not just the application of a mental model or mathematical algorithm because the claims also recite a specific process step to modify a reagent stream in response to this calculation, therefore resulting in a useful, concrete and tangible result.

Applicant accordingly respectfully submits that the claimed invention is definite and requests withdrawal of this rejection.

Claims 1-12, 14, and 15 are rejected under 35 USC § 112, first paragraph, as containing subject matter which does not meet the written description requirement. Applicant offers the following comments.

The Office objects to the term “coefficient” in Claim 11. Applicant respectfully submits that the specification does describe how to calculate this value on page 10, lines 10 – 14 and in originally filed Claim 13, which was incorporated in Claims 11 and 26 by the last amendment.

Claim 1 is rejected on the basis that it does not require the assertion of control. The recitation of “calculating” a set value for green liquor density has been added to the claim to clarify the steps of “calculating” and “controlling”.

Applicant accordingly respectfully requests withdrawal of this rejection as well.

Claims 1-12, 14, 15, and 26 are rejected under 35 USC §103 as unpatentable over Baines taken with Mosow. These references were addressed in a prior response. The Examiner responds to the previously presented arguments by saying that the claims show a different way of automating and controlling a process, but that both the claims and the prior art seek to efficiently produce a common product. Applicant respectfully submits that the common goal of efficiently producing a product does not negate the patentability of a process claim when the way in which the recited process controls and automates the process is not taught or suggested by cited references. In addition, the following comments on the references are provided.

The Office relies upon Baines as teaching computer control of a causticizing process. Baines states that there are two categories of measurements made of the liquors and the process described therein, namely, “ambient measurements” and “liquor component measurements.” Page 8, lines 13-16. The ambient measurements include temperature, pressure, pH, flow rate, and density of the liquor as it is processed through the slaker and causticizers. The liquor component measurements include the relative concentrations of the primary components (NaOH, Na₂CO₃ and Na₂S) of the green and white liquors. Thus, Baines measures different characteristics of the liquor streams than the claimed invention. Baines nowhere teaches or suggests measuring total titratable alkali and using this measurement as a basis for controlling the causticizing process.

Baines actually teaches away from the claimed invention. Baines states that determining the relative concentrations of the liquor components, as opposed to a measurement of a characteristic of the total liquor, is critical to the successful implementation of the invention. Page 8, lines 30-32. Thus, Baines teaches away from relying upon a measurement of a characteristic of the total liquor, such as total titratable alkali used in the claimed invention. Baines instead relies upon measurements of a plurality of different parameters of the liquor streams. Thus, Baines differs significantly with respect to the approach taken to control the causticizing process as compared to the claimed invention.

Mosow does not overcome the deficiencies of Baines. Mosow relies upon conductivity measurements to determine concentrations of a component of a stream during a causticizing process, in particular to determine sodium carbonate concentration. Further, Mosow actually teaches away from the claimed invention, stating that the method described therein is more accurate than indirect measures such as that of the density or total titratable alkali in a green liquor. Column 2, lines 58-62.

Neither of the cited references, whether considered singly or in combination, teach or suggest the claimed invention. Both of the cited references rely upon measurements of different stream components than that in the present invention. Neither reference teaches or suggests controlling a causticizing process by measuring total titratable alkali within a green liquor inlet stream and adjusting the density of the green liquor inlet stream based upon this measurement.

Thus, there is no motivation to combine the references as suggested by the Examiner and, even if the teachings of the references were combined, the result would not be the same as that claimed, because the references measure different stream components in an entirely different manner than claimed. Indeed, the references actually teach away from the claimed invention. Applicant accordingly respectfully requests withdrawal of this rejection as well.

The rejections of record having been addressed in full in the foregoing, Applicant respectfully submits that this application is now in condition for allowance, which action is

respectfully solicited. Should the Examiner have any questions regarding the foregoing, it is respectfully requested that he contact the undersigned at his convenience.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

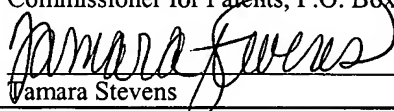


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